33. (Amended) The deposition zone of claim 32, wherein said deposition surface is electrostatically charged for attracting aerosols.

a4 cont.

[End replacement claims 28-33]

REMARKS

The claims are amended so as to contain only claims which have been indicated in the International Preliminary Examination Report prepared by the United States Patent and Trademark Office mailed 18 September 2001 as satisfying the criteria of PCT Article 33(1)-(4) as to novelty, inventive step, and industrial applicability. The claims remaining in the application are 1-14, 23 and 28-33.

Claims 15-22 and 24-27, which were asserted to not satisfy the criteria as to novelty and inventive step, have been cancelled without prejudice to their presentation for examination in a continuation patent application being filed concurrently herewith.

Claim 23, previously dependent from now cancelled claim 16, has been rewritten in independent form, incorporating all limitations of now-cancelled claims 15 and 16 from which claim 23 originally depended. In addition, parenthetical reference numbers have been removed from the claims.

A cross reference to provisional patent applications has been added to the specification.

In compliance with 37 C.F.R. §1.121(c)(1)(ii), on the following pages 12-20 are copies of the amended claims marked up to show all changes.

Pursuant to 37 C.F.R. §1.496(b), it is requested that the application be taken up out of order, and that a Notice of Allowance issue.

Respectfully submitted,

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APPENDIX--AMENDED CLAIMS TO SHOW CHANGES

1. (Amended) A system [(1)] for delivery and deposition of aerosolized masses, comprising:

an aerosol generator [(100)];

an upstream electro-optical mass concentration sensor [(200)], and a source of gas flow for transporting aerosols past said upstream electro-optical mass concentration sensor [(200)] at a known upstream volumetric flow rate;

a deposition zone [(300]) for collecting aerosols on or within a media;

a downstream electro-optical mass concentration sensor [(201)] for measuring the mass concentration of aerosols uncollected in said deposition zone, and a conduit [(108)] for transporting uncollected aerosols past said downstream electro-optical mass concentration sensor [(201)] at a known downstream volumetric flow rate; and

a controller [(400)] connected to said upstream and downstream mass concentration sensors [(200, 201)] and determining the net mass of aerosols collected within said deposition zone [(300)] by integrating over time the product of mass concentration measured by said upstream electro-optical sensor [(200)] and the known upstream volumetric flow rate minus the product of mass concentration measured by said downstream electro-optical sensor [(201)] and the known downstream volumetric flow rate.

2. (Amended) A system of claim 1, which further comprises an upstream volumetric flow rate sensor [(250)] for determining the

upstream volumetric flow rate, and wherein said controller [(400)] is connected to said upstream volumetric flow rate sensor [(250)].

3. (Amended) The system of claim 2, which further comprises a downstream volumetric flow rate sensor [(260)] for determining the downstream volumetric flow rate, and wherein said controller [(400)] is connected to said downstream volumetric flow rate sensor [(260)].

4. (Amended) The system [(1)] of claim 1, wherein said aerosol generator [(100, 101, 102, 103, 105)] comprises:

a metering pocket [(126, 165, 506, 540, 569)], with powder loaded into said metering pocket [(126, 165, 506, 540, 569)];

a jet [(122, 166, 568, 567)] for directing high velocity gas into said metering pocket [(126, 165, 506, 540, 569)] so as to fluidize the powder and produce an expansive bolus [(150, 176, 574, 575)]; and

a mixing chamber [(152, 46, 588)] into which the expansive bolus [(150, 176, 574, 575)] is directed.

5. (Amended) The system [(1)] of claim 4, wherein said metering pocket [(126, 165, 506, 540, 569)] is a micropocket having a volume of the order of one cubic millimeter.

6. (Amended) The system (1)] of claim 4, wherein said jet [(122, 166, 568, 567)] directs gas at a velocity approaching Mach 1 into said metering pocket [(126, 165, 506, 540, 569)].

7. (Amended) The system [(1)] claim 5, wherein said aerosol generator [(100)] further comprises:

a powder chamber [(112)] containing powder to be aerosolized;

a sealing gland [(130)] separating said powder chamber [(122)] and said mixing chamber [(152)]; and wherein

said micropocket metering pocket [(126)] comprises a microscoop in the form of a plunger rod [(120)] having a tip with said micropocket metering pocket [(126)] formed within said tip, said plunger rod [(120)] passing through powder in said powder chamber [(112)] so as to load powder within said micropocket metering pocket [(126)] and then engaging and penetrating said sealing gland [(130)].

8. (Amended) The system [(1)] of claim 5, wherein said aerosol generator [(100, 101)] further comprises:

a body [(160)];

a powder pocket cylinder cavity [(180)] within said body [(160)] and a powder pocket cylinder [(163)] within said powder pocket cylinder cavity [(180)], said powder pocket cylinder [(163)] having an outer cylindrical surface [(182)] and a plurality of metering pockets [(165)] formed within said cylindrical surface [(182)], and

a passageway [(184)] within said body [(160)] communicating with a metering pocket of said plurality [(165)] when said metering pocket [(165)] is in an active position so as to provide access to said metering pocket [(165)].

9. (Amended) The system [(1)] of claim 8, wherein said aerosol generator [(100, 101)] further comprises:

a metering cylinder cavity [(186)] within said body [(160)] and a rotating metering cylinder [(164)] within said metering cylinder cavity [(186)], said rotating metering cylinder comprising an outer tube [(164)] with first and second openings [(170, 175)] in the wall of said outer tube [(164)], said first opening [(170)] being selectively alignable with said passageway [(184)] communicating with said metering pocket [(165)]; and wherein

said gas jet [(166)] is within said outer tube [(164)] and directs high velocity gas through said first opening [(170)] into said metering pocket [(165)], thereby fluidizing powder [(169)] which passes through said first opening [(170)] into the interior of said outer tube [(164)] and out through said second opening [(175)] as an expansive bolus.

10. (Amended) The system [(1)] of claim 5, wherein said aerosol generator further comprises a megadose disc [(500)] having a surface [(501)] and a plurality of metering pockets [(506)] formed in said surface [(501)].

11. (Amended) The system [(1)] of claim 1, wherein said aerosol generator [(104)] comprises:

a source of a liquid solution [(610)] of an active ingredient and a volatile solvent;

an atomizer [(600)] for atomizing the solution to produce droplets from which the solvent evaporates to leave an expansive bolus [(601)] of solute residue; and

a mixing chamber [(602)] into which the expansive bolus [(601)] is directed.

12. (Amended) The system [(1)] of claim 1, wherein said deposition zone [(300)] comprises:

a porous media collection element [(310)];

an aerosol delivery tube [(309)] positioned generally against an upstream side of said porous media collection element [(310)] for delivering aerosols transported by a fluid; and

a perforated support element [(314)] positioned generally against a downstream side of said porous media collection element [(310)].

13. (Amended) The system [(1)] of claim 1 wherein said deposition zone [(300, 301)] comprises:

an impactor plate [(332)];

an impactor jet [(330)] for directing aerosols transported by a fluid against said impactor plate [(332)] for deposition thereon; and

an output conduit [(336)] for conveying away fluid and aerosols not deposited on said impactor plate [(332)].

14. (Amended) The system [(1)] of claim 1 wherein said deposition zone [(300)] comprises:

a mass delivery section [(365)] for loading an aerosolized mass [(360)] into a removable drift tube [(362)]; and

a deposition section [(366)] receiving said drift tube [(362)] and

including a source of displacement gas [(367)] for directing the aerosolized mass [(360)] over a deposition surface [(368)].

23. (Amended) An [The] aerosol generator for producing an aerosolized powder, said aerosol generator comprising [(100)] of claim 16, which further comprises]:

a metering pocket having a volume of the order of one cubic millimeter, with powder loaded into said metering pocket;

a powder chamber [(112)] containing powder to be aerosolized;

a sealing gland [(130)] separating said powder chamber [(122)] and said mixing chamber [(152)]; [and wherein]

said micropocket metering pocket [(126)] comprising [comprises] a microscoop in the form of a plunger rod [(120)] having a tip with said micropocket metering pocket [(126)] formed within said tip, said plunger rod [(120)] passing through powder in said powder chamber [(112)] so as to load powder within said

micropocket metering pocket [(126)] and then engaging and penetrating said sealing gland, [(130)]

a jet for directing high velocity gas into said metering pocket so as to fluidize the powder and produce an expansive bolus; and

a mixing chamber into which the expansive bolus is directed.

28. (Amended) A deposition zone [(300)] for collecting aerosolized masses, comprising:

a porous media collection element [(310)];

an aerosol delivery tube [(309)] positioned generally against an upstream side of said porous media collection element [(310)] for delivering aerosols transported by a fluid; and

a perforated support element [(314)] positioned generally against a downstream side of said porous media collection element [(310)].

29. (Amended) The deposition zone [(300)] of claim 28, wherein:

said aerosol delivery tube [(309)] has a tapered end; wherein

said perforated support element [(314)] is cup-like in configuration with a tapered interior surface; and wherein

said porous media collection element [(310)] is cup-like in configuration having a tapered interior surface matching the tapered end of said aerosol delivery tube [(309)] as the upstream

side, and a tapered exterior surface matching the taper of said perforated support element [(314)] as the downstream side.

30. (Amended) A deposition zone [(301)] for collecting aerosolized masses, comprising:

an impactor plate [(332)];

an impactor jet [(330)] for directing aerosols transported by a fluid against said impactor plate [(332)] for deposition thereon; and

an output conduit [(336)] for conveying away fluid and aerosols not deposited on said impactor plate [(332)].

31. (Amended) The deposition zone [(301)] of claim 30, wherein said impactor jet [(330)] directs aerosols transposed by a gas at a velocity approaching Mach 1 against said impactor plate [(332)].

32. (Amended) A deposition zone for collecting aerosolized masses, comprising:

a mass delivery section [(365)] for loading an aerosolized mass [(360)] into a removable drift tube [(362)]; and

a deposition section [(366)] receiving said drift tube [(362)] and including a source of displacement gas [(367)] for directing the aerosolized mass [(360)] over a deposition surface [(368)].

33. (Amended) The deposition zone of claim 32, wherein said deposition surface [(368)] is electrostatically charged for attracting aerosols.